# Integrating Physically Disabled Students into Physical Education

Curriculum

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# INTEGRATING PHYSICALLY DISABLED STUDENTS INTO PHYSICAL EDUCATION

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# Foreword

In 1984, Alberta Education reviewed all learning resources approved for use in Alberta schools to determine their acceptability in terms of tolerance and understanding. This curriculum audit identified a need for a resource manual to assist teachers with integrating physically disabled students into physical education.

For the purpose of this document, "physically disabled students" are defined as those who are limited in their ability to move and/or in their coordination (for example, students who are paralysed or who are missing a limb).

Discussions with physical educators have also indicated that some additional physical disabilities which hamper students are often overlooked. These abilities include obesity, physical awkwardness, asthma, epilepsy, and diabetes. Attempts have been made to provide suggestions for these types of students, as well as for students who have more severe handicaps.

This manual also includes a few suggestions for teaching students who are hearing impaired or visually impaired. However, it is important to note that sensory impairment, which is not equivalent to physical disability, must be approached in a different manner.

The suggestions in this manual are based on an assumption that the physically disabled students who are participating in physical education classes will be working at or near the same academic level as their peers.

# Acknowledgements

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# Integrating Physically Disabled Students into Physical Education

## I. INTRODUCTION

The Alberta curriculum guide for Elementary Physical Education (1983) states that the primary aim of physical education is to help an individual "...develop an interest in physical activity as an essential component of an active, healthy lifestyle" (p.5). Since physical education is an integral part of a student's affective, cognitive, and physical development, all children should have the opportunity to experiment with and discover new movements within an environment that recognizes individual differences.

The physical education program should strive to provide physically disabled students with opportunities to participate in physical activity, so that they can learn about the benefits of good physical health, social involvement, and participation in community leisure activities. Integrating physically disabled students into physical education can also provide meaningful activities for the students who are not disabled.

### A. Aim

The purpose of this monograph is:

1. To assist teachers in assessing the strengths and needs of physically disabled students.
2. To assist teachers in planning for maximum student involvement.
3. To offer some suggestions for adapting physical activities, equipment, and/or environment.
4. To suggest techniques for teaching the physically disabled student in an integrated class.
5. To assist teachers in evaluating the effectiveness of the program.

### B. Mainstreaming

"Mainstreaming" has been defined as providing the least restrictive environment for each child. Alberta Education has interpreted the concept of mainstreaming as educating all disabled school-age children in regular classes and/or regular schools. That is, the disabled student is allowed, to the greatest extent possible, to live and learn within the mainstream of the community, including the school.

C. The Process of Integration

Successful integration of disabled students into physical education will involve the following steps:

1. Assess students for skills and understanding,
2. Plan for their involvement,
3. Adapt the activities,
4. Teach individuals, and
5. Evaluate for effectiveness.

It should be noted that this is the same process as the one used for teaching all students.

D. Rationale for Integration

If the integration of physically disabled students is to be a successful experience for both students and teachers, three ingredients are essential.

1. There must be an emphasis on the socialization process as well as on the acquisition of skills.
2. There must be an atmosphere that encourages all class members to participate to the best of their ability (Grosse, 1978).
3. There must be an atmosphere that accepts the variations and limitations in performance and achievement of physically disabled students.

Serving as a scorekeeper or doing library assignments are no longer acceptable roles for physically disabled students who are taking physical education.

Physically disabled students should take part in a variety of activities within all of the physical education dimensions outlined in the curriculum guides - games, gymnastics, dance, outdoor pursuits, fitness, track and field, individual activities (secondary), and aquatics. These experiences will provide a basis upon which to make personal choices and develop a fitness-oriented lifestyle. Everyone, including disabled students, should have the opportunity to experience both the exhilaration and the disappointment associated with active involvement in the games, dances and sports of our culture.

E. Goals of Integration

The involvement of physically disabled students in physical education classes will provide opportunities for:

1. The development and maintenance of physical fitness.

Through regular exercise, people can develop and maintain bodies that resist illness and carry out daily activities

without fatigue. An understanding of the balance between exercise and dietary intake is particularly important for a physically disabled student, who may be more prone to a sedentary lifestyle.

2. The development of motor skills and their application in a variety of physical activities.

   Physically disabled students require practice in learning how their bodies move in space and what compensatory techniques may be needed to accomplish certain tasks. For example, students who have lost the functional use of their legs and use crutches need to learn how to move in different directions, at different levels, and at varying speeds. They also need to experience losing their balance and recovering. The physical education program should provide an opportunity for students to learn and understand their movement limitations and to work within them.

3. The development of knowledge and understanding related to physical activity.

   Physically disabled students need to understand rules, strategies, movement principles, training techniques, and the level of skill and practice required to become a proficient performer in relation to their special needs.

4. The development of social skills.

   The physical education setting provides an opportunity for students to interact spontaneously with one another, an opportunity that may not be as prevalent in other subject areas. Physically disabled students who feel comfortable in a physical activity setting will develop social skills that will facilitate their entry into many other social activities with peers.

5. Attitudes and appreciation.

   The physically disabled student should recognize the importance of fitness and physical activity for a healthy lifestyle. Disability need not dictate a sedentary lifestyle. Students need to have successful experiences in physical education in order to develop positive attitudes towards activity.

## II. STUDENTS WITH SPECIAL NEEDS

### A. They Have the Same Needs

Students who have physical disabilities must be viewed according to their development level, their abilities, and their potential. In other words, they are similar to other students.

1. They are the same chronological age as the other students.
2. They move to some degree and at some level of proficiency.
3. They process information.
4. They have self-concepts that need to be enhanced.
5. They have feelings.
6. They need attention.
7. They have common movement goals: to improve their movement ability.
8. They vary in their individual movement ability.
9. They need to feel important.

The needs of the disabled are the same as the needs of the non-disabled.

### B. They Learn in the Same Way

Motor skills are learned behaviors that are refined through experience. The physical education teacher attempts to provide a variety of structured activities that will establish a set of movement experiences upon which a student can base future movements. The learning of motor skills involves a complex process of:

1. Assimilating information from past experiences,
2. Selecting and applying a physical response that is suitable to the activity, and
3. Evaluating performance based on feedback.

C. Each Student Is an Individual

Each student has certain unique and individual strengths, weaknesses, and past experiences. Therefore, a general discussion of physically disabling conditions is difficult. For example, two students who have the same physically disabling condition can be very different in terms of their level of functional physical ability. When planning a physical education program, the teacher must keep in mind that many factors affect a student's functional level. These factors include:

1. The student's age,
2. The length of time the student has been disabled (since birth or acquired),
3. The student's past experience with physical activity,
4. The student's community experience,
5. The student's attitude towards physical activity,
6. The parental support received by the student,
7. The student's fitness level, and
8. The student's social maturity.

D. Physically Disabled Students May Differ in the Ways They Receive and Process Information or in the Way They Move

To adapt the program to meet specific needs, teachers should examine the students' motor behavior in terms of the ways in which they receive and process information, and the way they move.

Basically, the information processing system involves the input of information through the senses, decision-making and processing of information in the central nervous system, and the output of a physical response through the neuromuscular system of the body. An impairment in any part of this system will result in a motor impairment, and the location of the impairment will reflect a specific form of motor impairment. If a teacher observes a particular type of motor impairment, this observation can provide important clues about how to adapt instruction for learning.

The two charts on page 6 provide some examples of the motor impairments that might be observed, and how a teacher might adapt instruction to fit a certain type of disability.

| Disability | Motor Impairment |
|---|---|
| Physically Awkward Student | May be unable to receive and process information efficiently, i.e., throwing, catching, kicking. |
| Sensory Impaired Student | May have difficulty receiving information from the environment, i.e., seeing, hearing. |
| Student with a Central Nervous System Disorder | May have difficulty integrating information, i.e., coordination. |
| Physically Impaired Student | May have limitations in specific movements. |

| Disability | Deficit | Supplementary Information |
|---|---|---|
| Visually Impaired | May be Receiving Incomplete or Incorrect Information | Use clear, concise verbal instructions. Move the student's body through the desired movement and/or use verbal feedback as to the correctness of the response. |
| Hearing Impaired | May be Receiving Incomplete or Incorrect Information | Use visual demonstrations, move the student's body through the desired movement and/or use non-verbal feedback as to the correctness of the response. |

## III. WHERE DO I START?

Any attempt to structure the least restrictive environment for a disabled student in physical education should involve three major considerations:

1. The teacher's attitude towards the student,
2. The student's potential for movement and activity, and
3. The environment in which learning will take place.

### A. The Teacher

Teachers should investigate the nature of the disability and determine appropriate goals and objectives for the student. The parent(s) and the student should be asked for assistance in setting up realistic goals and objectives.

In advance of a student's participation in the physical education class, the teacher should become knowledgeable about the student's disability and the implications it has for participation in physical activity.

Before the student participates in the physical education class, it is crucial to know such things as whether the student is on medication, or if the student has asthma, diabetes, or a heart abnormality. Are contact sports advisable? Should the student participate in swimming? Does the student have skin sensation? Does the student use any special equipment such as a wheelchair, crutches and braces, a hearing aid, or glasses? Has the student had surgery? If so, what implications does it have for muscular strength and range of movement? All of these questions can be answered by gathering information from various sources.

Very often the students themselves can provide valuable information. A student should not be excluded from an activity because the teacher thinks the student would not benefit. A teacher's expectations should not dictate how much or what a student learns.

Teachers should realistically assess which activities are appropriate for integration of the student and which are not. As a result, the teacher may be faced with the decision to integrate the student in some aspects of the program and to create alternative plans for other aspects.

### B. The Student

The disabled student is more like than unlike his non-disabled peers. He has the same aspirations and developmental stages. He has the potential to develop skills and abilities. The teacher should view the disabled student as a changing, developing person with individual potential. On the other hand, both the teacher and the student must accept that there will be limits for participation in some activities.

C. The Environment

Many factors in the learning environment will affect successful integration of the physically disabled student.

The peer group should be given as much information as necessary regarding the disability and its implications. Knowledge should promote understanding, but the disabled student's privacy must also be protected.

The physical environment should be assessed for accessibility, nature of construction, and safety. Equipment sometimes can be modified to allow the disabled student to use it, but where the modification causes the student to receive undue attention, it is not appropriate.

The physical education class places a premium on one's ability to perform physical skills. The students' level of self-confidence and willingness to risk may have a significant effect on their ability to succeed as class members. Trust in one's self to participate successfully in the class, and trust that one will not be ridiculed for participating are prerequisites to developing and maintaining a positive attitude about physical activity. If the program emphasizes individual achievement and rewards effort, and if fear of failure or incomplete performance is eliminated, most students will be willing to participate.

D. Preparing Yourself and Your Students

SIX STEPS FOR EFFECTIVE MAINSTREAMING: A CHECKLIST

1. Prepare an environment in which individual differences are respected and valued. *

   - Confront differences by encouraging students to ask questions.
   - Simulate disabling conditions that help students understand what their disabled peers experience.
   - Discuss with younger children the disabilities depicted in stories such as "The Beauty and the Beast" or "Tom Thumb".
   - Discuss why some people mock others.

2. Eliminate established practices which unwittingly contribute to embarrassment and failure. *

   - Avoid having students select their own teams in front of the class.
   - Avoid elimination games where unskilled children who need the most practice are frequently sidelined.
   - Avoid posting only the best fitness scores.
   - Avoid requiring students to perform all the same skills.
   - Avoid requiring students to participate in all the same activities.

3. Build ego strength. *

   - Help the child develop self-esteem.
   - Help the child build self-acceptance.
   - Teach the child not to fear mistakes.
   - Help the child see and believe in personal strengths.
   - Provide successful experiences.
   - Set realistic expectations.
   - Allow participation at a level that corresponds to the child's level of maturity and ability.

4. Provide individual assistance and keep children active. *

   - Provide supplementary services when possible.
   - Use fitness and motor ability teaching stations.
   - Supply each student with a ball, bats, hoops, rope, etc.

5. Group according to ability levels to allow for mastery teaching. *

   - Provide time for the disabled child to successfully perform a skill before moving to the next.

6. Alter and adapt.

- Modify the rules.
- Modify the equipment.
- Modify the play area (e.g., court size).
- Encourage the disabled child and classmates to discuss the best and fairest way to alter activities and equipment.


Summary

In order to get started, the teacher must choose certain areas of the program that are appropriate for integration and that will help disabled students to develop their potential.

A teacher should aim to create a learning environment that:

1. Recognizes individual achievement and sets individual student goals,
2. Provides for a range of student involvement,
3. Recognizes that participation in some physical activities will require more support than others, and
4. Fosters an atmosphere of acceptance.

## IV. WHAT DO I DO? (PLANNING)

Once the teacher come to grips with what is possible, it is time to create a plan to develop the students' potential. A good integrated physical education program will provide experiences of high quality for both disabled and non-disabled students.

### A. Pre-assessment

The first step is to assess the disabled student's potential. Before the disabled student enters the class, information should be gathered on the specific nature of the disability. Initially, the teacher should contact the parent(s)/guardian(s), who may wish to provide a referral to a physician, physiotherapist, or other professional. More general information may be obtained from an appropriate agency, such as the Canadian National Institute for the Blind. (For additional resources, refer to Appendices A and B.)

### B. Assessment

The student's present level of motor skill proficiency will need to be assessed. Interpretation of the assessment results will assist the teacher in establishing goals for the student's program.

The information gathered from an assessment should include:

1. Proficiency in using assistive devices (wheelchair, crutches).
2. Hesitancy to participate (fears, dislike of physical activity).
3. Degree of body control (extra time needed to initiate a movement, muscle tone, balance, reaction time, efficiency of movement).
4. Fatigue factors (fitness level).
5. Maneuverability (ability to change direction, speed of mobility).
6. Past involvement in physical activity.
7. Level of fundamental motor skills.
8. Medical restrictions placed on physical activity.

Various methods are available for gathering and recording the information needed for program planning. Information may be gathered through direct observation, through interviews with the student, parents, teachers and teacher's aides, and through testing. The information can be recorded in the form of a checklist, or as the number of repetitions for completed activities (sit-ups), or as an anecdotal record. Decisions about the format of the assessment should be based on both the teacher's understanding of the student's disability and the activities included in the program.

Checklists of the following type may be useful.

Example 1: Developing of Kicking Skills

| | YES | NO | COMMENT |
|---|---|---|---|
| Kicks stationary ball | ___ | ___ | _____ |
| Walks and kicks stationary ball | ___ | ___ | _____ |
| Runs and kicks ball rolled straight at student | ___ | ___ | _____ |
| Runs and kicks ball rolled to left of student | ___ | ___ | _____ |
| Runs and kicks ball rolled to right of student | ___ | ___ | _____ |

Example 2: Mature Throwing Skills

| | | | | |
|---|---|---|---|---|
| Step forward with opposite foot | | ___ | ___ | _____ |
| Body rotation | a) hip-trunk | ___ | ___ | _____ |
| | b) arm-hand | ___ | ___ | _____ |
| | c) shoulder | ___ | ___ | _____ |

Further information on assessment appears in Appendix C.

## C. Setting Appropriate Individual Goals

Disabled students should be challenged to better their performance within the limits of their disabilities. However, performance expectations must be flexible. For example, it may be better to have a student execute a technically good volleyball serve from within the court than to have the student repeatedly hit the net from the regulation serving position.

Amputees can often become skilled participants in sports requiring physical strength, ability and stamina--such as swimming and skiing--when equipment and/or techniques are modified. With the support of guide runners, visually imparied students can run in relay races. Students with cerebral palsy may not be able to do the front crawl because of poor head control, but they may be able to perform the back crawl.

**Summary**

The information gained from assessment of the student's motor performance is used to:

1. Establish objectives for the student,
2. Establish expectations for performance based on the disabling conditioned,
3. Select appropriate activities for integration,
4. Modify the environment and equipment,
5. Select criteria for monitoring progress, and
6. Establish teaching style(s) that would be effective.

## V. HOW DO I DO IT? (IMPLEMENTATION)

### A. Structuring the Learning Environment

The teacher can do several things to improve the integration process:

1. Use the buddy system. Pair the disabled student with an alert and dependable peer.

2. Use peer teaching. Have a fellow student assist in teaching the disabled.

3. Be aware of the student's placement in the class. Ensure that the disabled student is close to the teacher and has full view of the teacher during instruction.

4. Pace instruction. Teach new material at the beginning of the period, before the student tires.

5. Be sensitive to situations that will cause embarrassment.

   - Special modifications may have to be made to the change room to respect the disabled student's special needs for privacy.

   - Teams should not be selected in such a way that the most popular or most skilled are chosen first.

   - Non-elimination games should be a large part of the program.

   - Co-operative games offer fun and activity with minimal demand for traditional game skills.

6. Promote confidence. Provide successful experiences for all students. Acknowledge effort and provide feedback that will enable the students to improve their performance. Positive reinforcement for individual personal accomplishments will assist in developing confidence within the limits of the disability.

7. Use sequential teaching progressions.

   - Proceed from simple to more complex tasks.

   - Once a skill is learned in isolation, incorporate it into a game situation.

- Within one class there may be three groups all working at the same task, but at different levels of skills. One group might use a garbage can with a junior-sized basketball, another group uses a regulation-sized ball at a lower basket, and the last group practices at the regulation-height basket.

- If a student is unskilled at a task, extra practice is needed before the next larger task is taught.

- A student may need additional instruction and practice outside the physical education class. A teacher's aide or student from a higher grade level may be of assistance.

- Simple and concise language very often will assist a student in picking out the crucial points.

- Demonstrations are also very useful in assisting a student to identify the important components of the task.

8. Guided discovery and problem-solving methods best meet the needs of many disabled students, particularly in the earlier grades. Asking students to "find the best way to move along the bench" gives them freedom to find their own ways to complete the task and be as successful as the other students. Individual movement expression should be encouraged.

B. Adapting Activities

The challenge in planning a physical education program that includes a disabled student is knowing when support is needed (all of the time or for certain activities only), what form it will take (changes of rules, frequent demonstrations, or using a nerf ball instead of a playground ball), and how it is best implemented (peer instruction, buddy system or remedial practice).

It is a good practice to involve the student and/or the class when modifying an activity. Teachers have two choices when adapting activities: (1) modifying the game or activity, or (2) providing alternative activities. A teacher can modify the game or activity by adapting the rules, equipment or environment. However, some team sports are not easily modified, and it may be necessary instead to provide alternative activities. These alternatives should be active and not simply a matter of watching or scorekeeping. For example, the disabled student may be weight training with a buddy while the remainder of the class plays football.

1. General Considerations

- Avoid having students select their own teams; the less skilled are invariably chosen last.
- Avoid elimination games, as the unskilled student is usually the first out.
- Skill patterns such as catching, kicking, throwing and running require considerable time to develop.
- Practicing against a wall is more predictable than with a partner.
- Activity stations allow students to progress at their own rate.
- Grass can be used instead of hard surfaces.
- Activities can be done with everyone sitting on the floor.
- If you are outside, speak with the sun in your face.
- Eliminate unnecessary background noise.
- Position yourself so you are facing hearing impaired students, and speak clearly.
- Ensure sufficient lighting.
- If there is some distraction in the area, have students face away from the distraction.

2. Safety Considerations

- Avoid situations that create excessive fatigue.
- Be aware of skin abrasions and contusions in the case of students who have no skin sensation; some may need to wear socks in the pool to avoid abrasions from the pool bottom.
- Be sure seat belts on wheelchairs are snugly fastened.
- Use proper transfer techniques when moving students from wheelchairs.
- Be sure students know how to fall and recover.

- Do not leave a student with a seizure disorder unattended. Also, be familiar with what to do in the event of a seizure.

- Avoid situations of physical contact.

- Be able to recognize the signs of shunt failure.

## VI. SPECIFIC SUGGESTIONS FOR ADAPTING ACTIVITIES TO INTEGRATE DISABLED STUDENTS

### A. Aquatics

Research supports the value of swimming and pool activities for everyone. For the student with special needs, the benefits of aquatics are often outstanding.

Some observations:

- Warm water (approximately 32°C) is essential, particularly for the student who has orthopedic conditions.
- Swimming is excellent for the student who has behavior disorders because the warm water is relaxing and often provides a sedative effect.
- Therapeutic exercise under water is especially good for the non-ambulatory student.
- Amputees can become excellent swimmers.
- Flotation aids may be used for swimming.

Claudine Sherrill has developed a three-level aquatics program which uses a movement exploration approach and a pre-beginning skills format (pp. 318-335):

Level 1 - Explorer

- washcloth games
- sponge games
- parachute games
- blowing games
- self-testing activities

Level 2 - Advanced Explorer

- towel games
- body shapes
- ways to enter the water
- retrieving objects from the pool bottom

Level 3 - Floater

- horizontal to vertical positioning
- floating
- bobbing
- front-to-back positioning and vice versa
- simple stunts in synchronized swimming

## B. Dance

Everyone should have the opportunity to experience dance and to dance as freely as possible. Dance can be adapted easily for individuals who have special needs.

**While Others Danced**

**While others danced I watched from my wheelchair pulled aside**
**And as I watched a vine grew inside strong and tough and nurtured of care.**
**While they danced they began to lift their heels in glee**
**And their knees they raised in joy.**
**I danced with them**
**And felt the rhythm giving insight to my movement;**
**And knew this was the vine that grew as spirit.**
**I danced along and the elbows of my thoughts slanted akimbo.**
**The back of my thoughts arched like theirs,**
**So when the dance was over I could give**
**The leader the vine that grew of my dancing.**
**I knew that future dances must grow a vine in thought.**

**-- Tom Phillips**

### 1. Neurological and Orthopedic Conditions

The American Alliance of Health, Physical Education, Recreation and Dance (A.A.H.P.E.R.D.) has developed a list of activities which may be helpful in teaching dance to students who have neurological and orthopedic conditions. The four categories listed below (General, Walkers, Crutches and Braces, and Wheelchairs) might be integrated.

Note: The teacher may need to work with crutches or a wheelchair to obtain first-hand experience before working with students who have ambulation (walking) difficulties.

#### General

- Place big left and right posters in the front and back of the room.
- Have students raise their right and left hands on cue.
- Explain proper ways to fall.
- Have students compile a list of things to remember when stopping and starting, such as their body positions, positions in relation to the space in the gym, or positions of their partners.

- Instruct students to take a scattered formation.

- Assist students who are very weak and incapable of voluntarily moving their own body parts by moving their arms for them.

- If some movements in a dance are too difficult, have students clap or omit the movement.

- On the chalkboard, list things to do while participating in a dance.

Walkers

- Instruct students to raise their right and left feet on cue.

- Some students can walk without aids, but they experience balance problems. Instruct such students to be careful when stepping backwards, and allow them to use wheelchairs for this activity if that is the only way they can experience dance safely and freely.

- Allow students to practice walking around in a circle without touching individuals in front of or behind them.

- Have students make a small circle to the count of four, turning left, then right.

- Conduct slow motion races to music.

- Design a short dance to music using the following sequence:

    . forward eight steps - backward eight steps
    . forward four steps - backward four steps
    . forward one step - backward one step

- Show students how to swing their partners safely.

- Select students with good balace to push students in wheelchairs who are unable to push themselves.

- Demonstrate correct ways to push wheelchairs.

Crutches and Braces

- Have students practice turning with control.

- If students are unable to make full turns, have them turn a little.

Wheelchairs

- Have students practice turning with control.

- If students are unable to use their feet, have them substitute arms or hands.

2. Hearing Impaired and Visually Impaired Students

Lessons in dance can also be adapted to suit the needs of hearing impaired and visually impaired students.

When programming for the student with hearing difficulties, select activities where verbal communication is limited. Students may tend only to follow each other at first, but this is fine. When doing individual dances, students can pound hard on the floor in rhythm so that the floor's vibrations may be felt. It is also important to know the decibel ranges in hearing for each individual so that appropriate levels of music may be used.

- Hearing impaired students can feel the vibrations of the music with their feet.

- Deaf students can increase their vocabulary through dance by "dancing the words".

- Dance encourages the use of residual hearing in hearing impaired students and may also increase their oral fluency.

For the student who has visual problems:

- Use music with a strong beat.

- Let the more energetic students have an area of the floor to themselves with the quieter ones in another area.

- Give totally blind students a chance to explore the breadth and depth of a room.

- Use tactile objects to elicit sensory responses (taste, smell) that students can express in dance.

The blind do not have superior auditory or tactile senses. Dance and accompanying music may help blind students use their senses more effectively.

## C. Fitness

Individuals who have low fitness levels need help to improve their attitudes towards exercise and raise their fitness levels. Physically disabled students need to acquire a positive attitude towards fitness in order to develop a positive self-concept and a healthy lifestyle.

> **The teachers' attitudes are the most important determinants of attitude change and behavior modification on the part of the student. Students often cannot cope with the problems of obesity, awkwardness and low fitness and in many cases lack faith in their ability to change themselves and suffer from poor self-concepts. It is necessary to change the student's self-concept before modifying attitudes toward fitness and exercise.**
>
> **(Claudine Sherrill, p. 169)**

Fitness activities should be planned to include a warm-up, a conditioning program, and a cool-down. The following principles of fitness training should be kept in mind:

1. Develop individual student programs based on assessment.

2. Overload - gradually, over a long period of time.

3. Frequency - three times per week on full-out effort.

4. Static stretching - slow, sustained stretching rather than active stretching (bouncing).

Fitness classes can be adapted to meet the needs of individual students in the following ways:

- Consult the Canada Fitness Award manual published by the federal Department of Fitness and Amateur Sport regarding adapting fitness activities for the mentally handicapped. The process and standards may also be applicable to physically disabled youth. For more information write to:

  Canada Fitness Award
  Fitness and Amateur Sport
  365 Laurier Avenue West
  OTTAWA, Ontario
  K1A 0X6

- Students who have breathing difficulties should not lie down or sit down following intensive exercise. They should continue slow walking or mild activity.

- If you post fitness scores, post the most improved rather than the best.

- In weight training, most upper body exercises can be performed in a wheelchair with either free weights or weight machines.

- Shuttle run blocks can be placed on a chair.

- Obstacle courses are popular with elementary school children.

- The shorter the lever (i.e. bent knees) the easier the exercise.

e.g.,

D. Games

Games, if handled correctly and modified appropriately, can provide many opportunities for the disabled student to learn, cooperate, achieve success, accept failure gracefully, take turns, share, and enjoy the game. Games can be highly organized with a specific goal in mind, or less systematic to ensure a minimum amount of competition. Games which have minimal competition are suitable for some students, while games with more rigid rules and expectations will stimulate children who are able to handle them.

According to Evelynn Schurr (p. 521), students must learn how to regulate for themselves the extent of their participation in physical activities. They must acquire knowledge and skill in a variety of games and activities in which they can participate, alone or with others, in their leisure time.

Bryant Cratty has found that the physically handicapped can participate in games successfully, despite the problems which may be encountered in devising appropriate activities. He states (pp. 1-2) that:

- Game participation fulfills social objectives.

- Games motivate the child to extend physical movement, thus improving movement capacities.

- Watching the movement of balls may reinforce visual perception.

- Group games are important for students with special needs, who may have been so protected by parents, teachers, and friends that they have been denied these experiences.

- Because of the nature of competition, teachers must be cautious when introducing games.

The excitement of games can result in undesirable emotional consequences for some students. If competition is stressed, students who in the past have had limited positive outcomes or repeated failures may tend to become "poor losers". Research indicates that students who lose are less likely to try harder the next time. It is therefore important to adapt game situations for successful participation.

Games must be modified carefully to meet the needs of the student who may not be able to participate fully in the regular physical education program. The program can be enhanced through the "game analysis" concept designed by G.S. Morris (How to Change the Games Children Play, 1980).

Game analysis involves examining the structure of a game and identifying the components that can be modified or adapted to ensure success. The following are steps in the analysis of a game:

- Name the game.
- Explain how players move.
- State the number of players in a team.
- State the type of equipment to be used.
- List the rules.
- Explain reasons for playing the game.
- Observe the group patterns.

The teacher might adapt or modify existing games or ask the students to help with the adaptations or modifications. Also, teachers and students can develop or design new games that will improve the motor abilities of all students.

For years, instruction in lead-up activities has been successful in the teaching of sports. Thus, it is evident that extended and adapted lead-up activities may be necessary for the child with special needs.

Some suggestions and observations:

- Students who are blind or deaf have a basic problem in receiving appropriate information from the environment in which they must perform their task.
- Many students with special needs have difficulty in participating in sports with rapidly changing conditions.
- Regular rest periods may have to be introduced for students with limited activity tolerance.
- The uncoordinated person cannot play games such as volleyball and softball in the structured, official sense.
- Individual sports such as archery, bowling, and golf are not considered vigorous, but they place sufficient demands upon the body to ensure desirable development. Therefore, they are very suitable for children with special needs.
- Physical fitness may be achieved through participation in sports.

Most sports activities can be introduced to the student with special needs. It is important to remember that participation is the key, and that how the game is played in the traditional sense is secondary. Adaptations will have to be made according to the student's capabilities.

Equipment Adaptations

The equipment the students use should match their skill levels. Some possible equipment adaptations are:

- Clamp a floor hockey stick to a wheelchair.
- Tape sponge around the handle of striking implements to make them easier to hang on to.
- Use a larger, lighter bat.
- Use velcro straps to tighten the student's grip.
- Have one student bat, and another run.

Rule Adaptations

Some possible rule adaptations are:

- The ball cannot be taken off a person's hockey stick; it must be intercepted during a pass.
- Three foul shot tries are permitted, instead of one.
- Mid-court serves are allowed.
- A three-step rule is used in basketball.
- A player must pass to all players before crossing the mid-court line.
- Non-disabled students must shoot from further away (e.g., five feet).
- An underhand pitch with a larger ball may be permitted.

Ball Adaptations

- A beach ball is large and can be partially deflated so it is easier to hang on to.
- A bean bag is good for practicing skills as it does not roll away.
- A nerf ball is soft and does not travel as far and does not hurt.

- A large ball is easier to catch and kick.

- Not all students need to use the same-sized ball.

- Leaning against a wall frees both arms from crutches for handling balls.

- A T-ball is permitted for some players.

- Wheelchair footrests are used to move a soccer ball.

- Crutches cannot be used to kick a ball; they are for support only.

- The student stands with his or her back to the wall so missed balls don't keep rolling.

Goal Adaptations

- Increase the size of the goal.

- Lower the net height.

- Make a target larger.

Court/Field Adaptations

- Shorten the distance to first base.

- Put the less mobile person in a position that does not require covering the entire court.

- Use a chair for balance in skating.

- Change the boundaries.

Following are some suggested adaptations for participation in specific sports:

Bowling

- Wheelchair bowling. All rules are the same, except that the actual physical approach is eliminated. Provide assistance for those who cannot retrieve the ball from the ball-return rack.

- Upper limb deficiencies. Use a bowling frame.

- Bowling for the blind. Use a guide rail and "bowling buddy system".

Archery

- Devices such as bow strings, below-elbow amputee adapters, and wheelchair bow stringers, have made it possible for students with special needs to participate in archery.

- For the partially sighted, telescopic sights have been developed. For the totally blind, a one-to-one student-teacher ratio is recommended.

Badminton

- Wheelchair badminton. Use racquets with extended handles.

- Upper limb amputees. Use a service tray.

E. Gymnastics

Gymnastics activities are suitable for individual student programs, and they are excellent ways of developing balance, strength, and mobility. In many cases, educational gymnastics and rhythmics are more suitable for the disabled student than traditional tumbling and artistic gymnastics.

Adaptations for Gymnastics

- Obese children may have difficulty with gymnastics. Work on building strength with lead-ups on equipment.

- A line on the floor makes a good substitute for a balance beam.

- Visually impaired students should tactually observe each piece of equipment before participating.

- Activities in balancing may be more appropriate for disabled students.

- Students need to learn how to fall safely.

- Strength development activities might be included in the gymnastics program rather than traditional stunts. For example, bar work might include chin-ups or swinging instead of more formal stunts.

## F. Outdoor Pursuits

"Outdoor pursuits" are conducted outdoors or beyond the confines of the school. Since these activities have excellent carry-over value, every effort should be made to include them in the total program.

Some examples are:

- alpine skiing
- cross-country skiing
- snowshoeing
- skating
- curling
- orienteering
- wilderness living skills
- roller skating
- backpacking
- hiking
- camping
- canoeing
- cycling
- sailing
- toboggan races
- Inuit games

Points for consideration:

1. A back rest can be fitted into a canoe.
2. Outriggers can be provided for alpine skiing and skating.
3. Sledges can be provided for skiing and hockey.

## G. Track and Field

The Olympics for the Disabled may be a useful role model for adapting track and field activities.

### Adaptations for Track and Field

- Base the program on personal improvement rather than on determining winners.

- Children who have visual impairments should use the outside lanes to avoid proximity to other runners.

- Buddy running. A sighted student runs ahead or beside a visually limited student and calls his or her name.

- Students who have problems with balance can throw while sitting on a bench.

- Shorten the distance, or have non-disabled students do the distance twice.

- If a student cannot run, use the standing high jump.

- For overweight students who will have difficulty on endurance runs, allow jogging and rest intervals.

## VII. FIVE COMMON DISABILITIES

The five most common disabilities which affect participation in physical education are obesity, physical awkwardness, asthma, epilepsy, and diabetes.

### A. Obesity

Generally, obesity is defined as 20 percent over the ideal weight. Obviously this is a relative definition. For the physical educator, excessive weight can be defined as a disability when it interferes with successful participation in class activities. In many cases, the primary problem is encouraging overweight children to be more active and improving their attitudes towards participation in activity. One way of overcoming inertia is to attempt to change as many as possible of the factors that control the students' exercise behavior.

Following are some suggestions for changing factors that may control an obese student's behavior.

| Factors That May Control Behavior | Possible Changes |
|---|---|
| 1. Situations | |
| Clothing. Oversize clothing may be very unattractive and uncomfortable. | - Allow sweat suits instead of shorts.<br>- Accommodate the student in terms of comfort and availability. |
| Parents. Often one or both parents are concerned about childhood weight problems but won't necessarily address the teacher with their concerns. | - Send a letter.<br>- Request an interview by phone.<br>- Outline desire to make student more active. |
| Special Program. Obese students often respond in a special class where their inadequacies aren't exposed to their peers. | - If student agrees, enrol him or her in a physical education class for obese students.<br>- If not, counsel student after school or at noon. |
| Peer Modeling. Counselling may uncover the student's desire to participate in specific activities with certain peers. | - Engage support from a friend or peer. |
| Modeling on Sports Personalities. Find a suitable sports personality to serve as a model. (e.g., in 1985 Kent Nielsen read and followed Eat to Win and lost 20 lbs.) | - Encourage the student to follow a medically approved diet. |

| Factors That May Control Behavior | Possible Changes |
|---|---|
| 2. Skills Deficits | |
| How to Exercise. Obese students often lack exercise experience and don't understand basic principles which perhaps other students absorb naturally. | - Teach fundamental principles of fitness and important safety factors to consider when exercising. |
| Judging the Body's Feedback. Overweight students may not be aware of their bodies. | - Encourage the student to pay attention to messages that the body sends out in response to exercise. |
| Knowledge of Calorie Intake/Output. Many overweight students have misconceptions about calories taken in and expended. | - Have the student keep a diary of daily activities for one week, then analyze the caloric input/output ratio. |
| 3. Attitudes | |
| Self-Efficiency. Most overweight people don't like their fat body, and perhaps feel trapped. | - Question students about positive things they can do to change their bodies, and how they can learn to accept themselves. |
| Positive Thinking. Many overweight students feel helpless. | - Start individuals thinking about how they have the power to control their energy balance. |

B. Physical Awkwardness

The awkward or clumsy student is the disadvantaged learner in physical education. In most physical activities these students perform at levels below those of their peers, despite the fact that they do not have physical or mental handicaps. They require greater practice time to become proficient in motor skills. They are usually very aware of their inabilities and consequently have poor self-images and negative attitudes towards physical education. They may misbehave in physical education class.

To begin, the teacher should:

1. Recognize that the student's difficulties are real.

2. View students in terms of their potential for development.

3. Assess the program and try to ensure that the student will be successful in some or most of the activities.

Following are some suggestions for changing factors that may control a physically awkward student's behavior.

| Factors That May Control Behavior | Possible Changes |
|---|---|
| Feedback. Negative feedback on performance will likely cause frustration. | - Talk to the student in a supportive manner. |
| Skills. Students may be overwhelmed. | - Select a restricted number of tasks rather than trying to improve performance in all areas. |
| Objectives. Class-centered objectives may not meet the needs of the awkward student. | - Select objectives which match the student's skill level but still present a challenge. |
| Content. Activities requiring hand-eye or foot-eye coordination (kicking, striking and throwing) are likely to cause frustration and failure. | - Encourage students to develop skills in activities that are less likely to expose their difficulties (swimming, jogging). |
| Games. Competitive team games draw attention to the less agile student. | - Use cooperative games. |
| Selecting Teams. Allowing students to choose their own teams centers attention on the awkward student who will likely be chosen last. | - Teacher chooses the teams.<br>- Number off. |
| Fitness. Awkward students have difficulty in activities requiring motor fitness. | - Emphasize strength, endurance, flexibility, and cardiovascular fitness. |

C. Asthma

Asthma is a respiratory disorder characterized by narrowing of the air passages in the lungs. Possible aggravating factors include viral respiratory infection; exercise; emotional upset; inhalation of cold air, dusts, pollens, or known allergens; and exposure to such irritants as fresh paint, gasoline, and other fumes. Asthma usually begins in the early years of life, but it may develop at any age.

To minimize the risks and to avoid serious problems, every teacher should take these initial measures:

- Survey each class to learn who has asthma or allergy-related breathing problems.

- Ask students who have breathing problems about their medication and where they keep it.

- Learn the appropriate emergency procedures for dealing with an attack.

- Ensure that activity areas are clean, dust-free, and well ventilated.

Signs and Symptoms of an Asthmatic Attack

The frequency and degree of symptoms vary greatly. An "asthma attack" may involve any one of, or a combination of, the following features:

- difficult breathing - shortness of breath
- wheezing
- violent attacks of coughing
- apprehension, fear and/or severe distress during an attack
- rapid pulse
- scant and sticky sputum
- less difficult breathing in an upright position
- confusion
- decrease in physical performance
- aching rib cage during and following an attack

Management of an Attack

1. Remove the student from the gym or playing field if possible. Keep spectators clear of the treatment area.

2. Seat the student on a bench or on the ground to administer the bronchodilator. Two puffs of the inhaler is the usual dosage; however, some students may have a personalized program designed by the physician. No more than two puffs of the inhaler should be administered if there is no response.

3. If the constriction is not severe, the student must relax until the brochospasm reverses spontaneously. Relaxation techniques include "pursed-lip" breathing and bending forward from the waist with arms loosely crossed in front of the body.

4. If the bronchoconstriction is severe and bronchodilation is not achieved from the medication, transport the student to a hospital or medical clinic.

## Exercise-Induced Asthma

Exercise-induced asthma (EIA) is an abnormal, distinctive, reversible impairment in post-exercise lung function, which occurs in most asthmatic individuals following an exercise challenge. It is specific in terms of type, severity, and duration under certain conditions of temperature and humidity. Exercise-induced asthma affects between 13 and 90 percent of the asthmatic population.

Increased airway reactivity usually appears during exercise or in the first ten minutes before it reverses spontaneously.

Individuals who develop EIA may not experience bronchospasm at any other time. Some may develop EIA only in combination with cold, wind, or allergies. In either case, the individual is symptom-free between exercise bouts.

The mechanism of EIA is not yet fully understood. Studies have shown that an increase in humidity and warming of inspired air will decrease the level of obstruction, whereas decreasing humidity and cooling of the inspired air will increase the obstruction. In addition, a high rate of ventilation will cause more bronchospasm than a lower rate.

Following are some suggestions for changing factors that may affect an asthmatic student.

| Factors That May Control Behavior | Possible Changes |
|---|---|
| 1. Situations | |
| Environment. Activities in certain environments can induce asthmatic attacks. | - Warm, humid environments like an indoor swimming pool tend to cause less constriction than a cold, dry environment. |
| Allergies. Allergic asthma is precipitated by exposure to allergens, most commonly airborne pollen, molds, dust, and animal dander. | - Keep activity area clean and dust-free.<br>- Avoid areas that have airborne pollens. |

| Factors That May Control Behavior | Possible Changes |
|---|---|
| 2. Skills Deficits | |
| Running. The most common cause of bronchospasm is running. | - Involve students in intermittent exercise and activities of less than three minutes' duration (e.g., softball, golf, and swimming versus long distance running, soccer, and handball). |
| Exertion. Activities requiring near maximum exertion level will likely cause more problems than activities involving only technical skills. | - In some cases, an alternative activity such as archery may be recommended. |
| Use of Diaphragm. The asthmatic typically overworks the upper chest in breathing, using intercostals more than the diaphragm. | - Diaphragmatic breathing exercises (see Sherrill). |
| Relaxation. The most important factor in the management of an asthmatic attack is relaxation. | - Teach relaxation (see Sherrill). |
| 3. Attitudes | |
| Fit students seem better able to accommodate asthma and prepare for any circumstances arising from it. | - Encourage asthmatics to view exercise as one of the tools for managing the disorder. |

D. Epilepsy

Epilepsy is a chronic disorder of the brain characterized by recurrent attacks involving loss of consciousness and/or convulsions. Since most cases of epilepsy are managed through medication, epileptics need not be unduly restricted in physical education. However, diving is not advised, because of the obvious complications of an underwater attack. For the same reason, swimming must be very carefully supervised. Since gymnastics could be dangerous, activities must be well supervised and safe spotting techniques used.

For epileptics the social problems are often greater than the medical ones. Many people have misconceptions about the disease because of lack of knowledge. Teachers and peers should be given the opportunity to discuss the condition and learn more about it.

Following are some suggestions for changing factors that may affect an epileptic student.

| Factors That May Control Behavior | Possible Changes |
|---|---|
| Frequently, parents of children with epilepsy feel that identifying the condition to classmates will create a stigma or cause suspicion and rejection. | - An open discussion of epilepsy will establish a positive, straightforward understanding and dispel the mystery. |
| The student is often over-protected because there are many myths associated with exactly what factors precipitate an attack. | - Normal epileptics whose seizures are under control should be treated in the same way as their peers, so as to promote feelings of acceptance. |
| The teacher may be concerned about intruding into the epileptic student's personal life. | - A short, private interview should be conducted to gain a complete picture of the child and to demonstrate the teacher's concern and interest. |

The following questions are an appropriate guideline for an interview:

1. When was the last time that you had a seizure?
2. How often do you have seizures?
3. What causes your seizures?
4. Do you know when you are going to have a seizure?
5. What happens to you when you have a seizure?
6. Do you lose consciousness?
7. How long does your seizure usually last?
8. How do you feel when you wake up after an attack?
9. Do you take medicine and, if so, do you bring it to school?
10. Where do you keep your medicine when at school?
11. Do the other students know you have epilepsy?

In most instances, the seizure pattern will be consistent. Therefore, knowledge gained by asking these questions should prepare the instructor to handle a seizure calmly when or if it occurs.

## E. Diabetes

Diabetes is a metabolic disturbance resulting from lack of insulin in the body. Treatment of juvenile onset diabetes consists of daily injections of insulin, regular exercise, and controlled dietary intake.

A daily exercise plan is important for a diabetic because it lessens the insulin requirement and also helps with weight control.

Following are suggestions for changing factors that may affect a diabetic student.

| Factors That May Control Behavior | Possible Changes |
|---|---|
| 1. Situation | |
| An emergency might occur, involving a gastrointestinal upset or vomiting. | - If vomiting has occurred, the child should be excused from the activity.<br>- A diabetic should not take an overnight camping trip away from medical aid. |
| 2. Skills Deficit | |
| Overexercise may cause an insulin reaction or shock (hypoglycemia) which may lead to convulsions or unconsciousness. | - Ensure that the diabetic student learns to regulate insulin intake in accordance with exercise demands.<br>- Keep on hand a supply of dextrose tablets, hard candy, soft drinks, or juice. |
| 3. Attitudes | |
| Diabetic students may assume they can never be like other students. | - Develop positive attitudes towards vigorous physical activity, emphasize lifetime sports, and introduce role models of athletes who have diabetes. |

# Appendix A

## Teacher References

The following references are recommended to teachers as sources of additional information:


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# Appendix B

## Sports Organizations

Alberta Association for Disabled Skiing
P.O. Box 875, Station M
Calgary, Alberta T2P 2J6
(403) 284-6065

Alberta Cerebral Palsy Sport Association
Room 7, Princeton School
7720 - 130 Avenue
Edmonton, Alberta T5C 1Y2

Alberta Sports and Recreation Association for the Blind (ASRAB)
Box 655, Station G
Calgary, Alberta T3A 2G5

Canada Fitness Award (for trainable mentally handicapped students)
Fitness and Amateur Sport Canada
365 Laurier Avenue, West
Ottawa, Ontario K1A 0X6

Canadian Amputee Sports Association
Association canadienne des sports pour amputes
333 River Road
Ottawa, Ontario K1L 8B9

Canadian Association for Disabled Skiing
Association canadienne des sports pour skiers handicapes
333 River Road
Ottawa, Ontario K1L 8B9

Canadian Association for Health, Physical Education and Recreation (CAHPER)
333 River Road
Vanier, Ontario K1L 8B9

Canadian Blind Sports Association
Association canadienne des sports pour aveugles
333 River Road
Ottawa, Ontario K1L 8B9
(613) 748-3981

Canadian Federation of Sport Organization for the Disabled
Federation canadienne des organisations de sport pour handicapes
333 River Road
Ottawa, Ontario K1L 8B9

Canadian Wheelchair Sports Association
Association canadienne des sports en fauteuil roulant
333 River Road
Ottawa, Ontario K1L 8B9

Federation of Silent Sports of Canada, Inc.
Federation sportive des sourds du Canada
Sports Liaison Officer
2125 West 7th Avenue
Vancouver, B.C. V6K 1X9

The Motor Development Clinic for Physically Awkward Children
Faculty of Physical Education and Recreation
University of Alberta
Edmonton, Alberta T5G 2H9

Paralympics Sports Association
#110, 10235 - 124 Street
Edmonton, Alberta T5N 1P9
(403) 488-0151

The Research and Training Centre for the Physically Disabled
Faculty of Physical Education and Recreation
University of Alberta
Edmonton, Alberta T5G 2H9

Sledge Hockey and Ice Pick Association
20 Horner Court, N.E.
Medicine Hat, Alberta T1C 1M1
(403) 506-SHIP

# Appendix C

## Assessment Information

STUDENT INFORMATION Grade____ Section____

NAME: _____

HOME ADDRESS: _____

_____

HOME TELEPHONE: _____

PARENT INFORMTION

MOTHER'S NAME: _____ FATHER'S NAME: _____

PLACE OF WORK: _____ PLACE OF WORK: _____

TELEPHONE: _____ TELEPHONE: _____

EMERGENCY INFORMATION

DOCTOR: _____

TELEPHONE: _____

HOSPITAL: _____

CONDITION

1. Brief description of the condition: _____

_____

2. Permanent ☐ Temporary ☐

3. Length of Disability: Since Birth ☐ Acquired ☐

4. Comments about student's medication and its effects on participation in physical activity (if appropriate) _____

_____

**FUNCTIONAL CAPACITY**

Unrestricted - no restrictions relative to vigorousness or type of activity.

Restricted - condition is such that intensity and type of activity need to be limited.

☐ Mild. Ordinary physical activities need not be restricted, but unusually vigorous efforts should be avoided.

☐ Moderate. Ordinary physical activities need to be moderately restricted and sustained strenuous efforts avoided.

☐ Limited. Ordinary physical activities need to be markedly restricted.

## ACTIVITY RECOMMENDATIONS

Indicate body areas in which physical activities should be maximized or minimized.

| Body Area | Max. | Min. | Both | Right | Left | Comments |
|---|---|---|---|---|---|---|
| Neck | | | | | | |
| Shoulder Girdle | | | | | | |
| Arms | | | | | | |
| Elbows | | | | | | |
| Hands and Wrists | | | | | | |
| Abdomen | | | | | | |
| Back | | | | | | |
| Pelvic Girdle | | | | | | |
| Legs | | | | | | |
| Knees | | | | | | |
| Feet and Ankles | | | | | | |
| Toes | | | | | | |
| Fingers | | | | | | |
| Other (Specify) | | | | | | |

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Ontario Wheelchair Sports Association. Address: Ontario Wheelchair Sports Association
333 River Road
VANIER, Ontario
K1L 8H9

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- Wheelchair Sports
- Archery and Riflery
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- Table Tennis
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- Weight Lifting

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